



Dart Hawkesbury  
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada  
Tel (613) 632-5200  
Fax 613 632-5246

## Purchasing Receipts

Print

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
PO040984	MES002-VC	1	1	Net 30	M2024T3S.040	2024-T3 .040 Sheet : MATERIAL: 2024-T3 ALUMINUM SHEET AS PER QQ-A-250/4 OR AMS-QQ-A-250/4 OR AMS 4037 OR ASTM B209				96	9/28/2018	96		S114846	Stock	9/28/2018	\$ 9.44 / sf	5		\$905.90	Metaux Solutions
		2			M304R0.625	304 SS Round bar 0.625 : MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft				24		24		S115486	Stock	10/2/2018	\$ 4.40 / ft	1		\$105.60	Metaux Solutions
		3			M304S11GA	304/316 0.125 Sheet : MATERIAL: AISI 304/316 SS SHEET ANNEALED AS PER MIL-S-5059 OR AMS 5513 (304) OR AMS 5524 (316) OR ASTM A240 OR ASME SA240				64		64		S114838	Stock	9/28/2018	\$ 16.60 / sf	5		\$1,062.40	Metaux Solutions
		4			M304R0.375	304 Round Bar 0.375 : MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft				24		24		S115487	Stock	10/2/2018	\$ 2.75 / ft	1		\$66.00	Metaux Solutions
		5			M304R0.4375	304 Round Bar 0.4375 : MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft				12		12		S115488	Stock	10/2/2018	\$ 3.95 / ft	1		\$47.40	Metaux Solutions
		6			M303R1.000	303 Round Bar 1.00 : MATERIAL: AISI 303 SS ROUND BAR AS PER ASTM A582 NOTE: 304/316 NOT ACCEPTABLE receive ft						12		S115489	Stock	10/2/2018	\$ 16.00 / ft	1		\$192.00	Metaux Solutions
		7			M1020TR2.125W.120	M1020TR2.125W.120 (.125) receive ft						12		S115490	Stock	10/2/2018	\$ 13.70 / ft	1		\$164.40	Metaux Solutions

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		8			M304TS0.750W.049	304 Sq Tube .75X.75X.049W ; MATERIAL: AISI 304/316 SEAMLESS STAINLESS STEEL SQUARE TUBING AS PER ASTM A554 MILL FINISH OR ASTM A269 MILL FINISH receive ft				600		600		S115491	Stock	10/2/2018	\$ 3.80 / ft	1		\$2,280.00	Metaux Solutions
		9			M6061T6T0.500W.058	6061-T6 Round Tube .500 X.058W ; MATERIAL: 6061-T6 T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				168		168		S115492	Stock	10/2/2018	\$ 6.75 / ft	1		\$1,134.00	Metaux Solutions
		10			MT-4140-S- 3.000X3.500	AISI 4140 / 4142 Steel Bar 3.000 x3.500 MATERIAL: AISI 4140 / 4142 STEEL BAR MINIMUM ROCKWELL C = 28 Rc MAXIMUM ROCKWELL C = 32 Rc ASTM A29, AMS 6349, AMS 6382, AMS 6529, MIL-S- 5626, MIL-S-24093 MT-4140-				8		8		S115493	Stock	10/2/2018	\$ 113.83 / ft	1		\$910.60	Metaux Solutions
		12			MT-4140-S- 0.500x0.500	4140 Steel Sheet 0.500 X 0.500 ; MATERIAL: AISI 4140 / 4142 STEEL SHEET OR PLATE MINIMUM ROCKWELL C = 28 Rc MAXIMUM ROCKWELL C = 32 Rc ASTM A829, AMS 6395 receive ft				12		12		S115551	Stock	10/2/2018	\$ 7.30 / ft	1		\$87.55	Metaux Solutions

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
		13			M4140H-R3.000	4140 Round Bar 3.000 : AISI 4140H ROUND BAR PER AISI4140OR ASTM A304-02/A-434-BC/- A193-03-GRADE B7/A29-03/A322-91 OR UNS#-G41400 MINIMUM ULTIMATE TENSILE STRENGTH=100 KSI MINIMUM YIELD TENSILE STRENGTH=66KSI receive ft				6		6		S115494	Stock	10/2/2018	\$ 45.95 / ft	1		\$275.70	Metaux Solutions
Total:												1,038								\$5,633.25	

Plex 10/3/2018 12:37 PM dart.Tollis.Andrew



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER PO040984

**Supplier:** MES002-VC  
Metaux Solutions  
2625 boul Jacques-Cartier Est  
Longueuil  
QC  
J4N 1L7 Canada  
Phone: 800 558 8858  
Fax: 514 633 8044

**PO No:** PO040984

**PO Date:** 9/11/18

**Due Date:** 9/20/18

**Purchase Order**

**Revision:**

**Revision Date:**

**Ship-To Contact:** Lavoie, Chantal  
clavoie@dartaero.com

*REVISED*

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground

**Pymt Terms:** Net 30

**Freight Terms:**

**Special Comments:** quote no. 28900,28948,29016,28925

## Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
2 M		M304R0.625	SR584	304 SS Round bar 0.625 : MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft	Firmed	-	9/28/18	24 ft	0 ft	24 ft	\$4.40/ft	\$105.60
								✓ 24ft		AT 18/10/03		
4 A		M304R0.375	SR384	304 Round Bar 0.375 : MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft	Firmed	-	9/28/18	24 ft	0 ft	24 ft	\$2.75/ft	\$66.00
								✓ 24ft		AT 18/10/03		
5 A		M304R0.4375	SR7164	304 Round Bar 0.4375 : MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft	Firmed	-	9/28/18	12 ft	0 ft	12 ft	\$3.95/ft	\$47.40
								✓ 12ft		AT 18/10/03		
6 A		M303R1.000	SR13	303 Round Bar 1.00 : MATERIAL: AISI 303 SS ROUND BAR AS PER ASTM A582 NOTE: 304/316 NOT ACCEPTABLE receive ft	Firmed	-	9/28/18	12 ft	0 ft	12 ft	\$16.00/ft	\$192.00
								✓ 12ft		AT 18/10/03		
7 A		M1020TR2.125W.120	DT21818	M1020TR2.125W.120 (.125) receive ft	Firmed	-	9/28/18	12 ft	0 ft	12 ft	\$13.70/ft	\$164.40
								✓ 12ft		AT 18/10/03		



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# PURCHASE ORDER

## PO040984

### Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
8 AT		M304TS0.750W.049		304 Sq Tube .75X.75X.049W : MATERIAL: AISI 304/316 SEAMLESS STAINLESS STEEL SQUARE TUBING AS PER ASTM A554 MILL FINISH OR ASTM A269 MILL FINISH receive ft	Firmed	-	9/28/18	600 ft	0 ft	600 ft	\$3.80/ft	\$2,280.00
								✓ 600ft			AT 18/10/03	
9 AT		M6061T6T0.500W.058	ADS12058	6061-T6 Round Tube .500 X.058W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	-	9/28/18	168 ft	0 ft	168 ft	\$6.75/ft	\$1,134.00
								✓ 168ft			AT 18/10/03	
10 AT		MT-4140-S- 3.000X3.500	MP341H	AISI 4140 / 4142 Steel Bar 3.000 x3.500 MATERIAL: AISI 4140 / 4142 STEEL BAR MINIMUM ROCKWELL C = 28 Rc MAXIMUM ROCKWELL C = 32 Rc ASTM A29, AMS 6349, AMS 6382, AMS 6529, MIL-S- 5626, MIL-S-24093 MT-4140-	Firmed	-	9/28/18	8 ft	0 ft	8 ft	\$113.825/ft	\$910.60
								✓ 8ft			AT 18/10/03	
11		MT-O1-B-0.125X4.000	F184O1	AISI O1 Tool Steel Bar 0.125 X 4.000	Firmed	-	9/28/18	9 ft	0 ft	9 ft	\$25.19/ft	\$226.71



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# **PURCHASE ORDER** **PO040984**

## **Items**

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
12 ✓ AT		MT-4140-S-0.500x0.500	MP1241H	4140 Steel Sheet 0.500 X 0.500 : MATERIAL: AISI 4140 / 4142 STEEL SHEET OR PLATE MINIMUM ROCKWELL C = 28 Rc MAXIMUM ROCKWELL C = 32 Rc ASTM A829, AMS 6395 receive ft	Firmed	-	9/28/18	12 ft	0 ft	12 ft	\$7.295833/ft	\$87.55
								✓ 12 ft			AT 18/10/03	
13 ✓ AT		M4140H-R3.000	MR341H	4140 Round Bar 3.000 : AISI 4140H ROUND BAR PER AISI4140OR ASTM A304-02/-A-434-BC/- A193-03-GRADE B7/-A29-03/-A322-91 OR UNS#-G41400 MINIMUM ULTIMATE TENSILE STRENGTH=100 KSI MINIMUM YIELD TENSILE STRENGTH=66KSI receive ft	Firmed	-	9/28/18	6 ft	0 ft	6 ft	\$45.95/ft	\$275.70
								✓ 6 ft			AT 18/10/03	
14		MT-A513-T-0.500W0.065	DT12065	A513 Seamless Alloy Steel Round Tubing 0.500"dia. x 0.065" Wall  MATERIAL: ASTM A513 TYPE 5 (1020/1026) SEAMLESS ALLOY STEEL ROUND TUBING (DOM) ASTM A513 TYPE 5	Firmed	-	9/28/18	24 ft	0 ft	24 ft	\$3.50/ft	\$84.00
											<b>Grand Total:</b>	<b>\$5,573.96</b>



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**PURCHASE ORDER**  
**PO040984**

**Order Notes**

Procurement Quality Clauses

- A005 right of entry
- A012 chemical and physical test report
- A016 personnel qualification
- A017 raw material identification (as applicable)
- A026 certification of material conformance
- A041 quality management system
- A042 dart notification by supplier
- A043 retention of quality documents
- A048 counterfeit parts avoidance, detection, mitigation and disposition program
- A049 supplier awareness

CL

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 10/3/18 7:23 AM dart.lavoie.chantal

METAUX SOLUTIONS INC  
2625 BOUL JACQUES CARTIER EST  
LONGUEUIL, QUEBEC  
J4N 1L7 Tel.: 450 641-3330

Customer: 6323336

DART AEROSPACE LTD  
1270, ABERDEEN STREET  
HAWKESBURY, ONTARIO  
K6A 1K7

## Shipping Order

25/09/2018

Order : 138058  
Reference : 40984  
Bid : 29016  
Ship : PICK UP / PICK UP

### Ship To

Same

Tel.: 1 613 632-3336

Item No.	Description	Qty	Qty. Delivered	B/O Qty
SSQT34340494	1 X 12' ***** HT: 14300498 AT 304 SQ TUBE .750 X .049 WALL ✓ 30 X 20' *****	600	600	Ø
ADS12058	HT: TRK060596 AT ALU TUB .500" X .058" DRANW ✓ 14 X 12' *****	168	168	Ø
MP341H	HT: 171229a6 AT 4140 HTSR PLATE 3.00 THICK ✓ 1 X 3.5" X 96"	314	314	Ø
F18401	HT: 94802 AT KETOS GFS .125 X 4 FL 36 CAN '✓ 3 PCES ✓	3	3	Ø
MP1241H	4140 HTSR PLATE TFHT .500" 1 X .500" X 144" R/L ✓	16	16	Ø
MR341H	HT: 96017 4140 HTSR ROU 3.000 DIA ✓ 1 X 72"	6	6	Ø
DT12065	H: 52041117 AT MS TUB .500 X .065 WALL DOM ✓ 1 X 18.58' HT: F686891	18.58	18.58	Ø

~~Signature~~  
Inré par notre Commission

\*\*\* Continued on Next Page \*\*\*



## Shipping Order

25/09/2018

METAUX SOLUTIONS INC  
2625 BOUL JACQUES CARTIER EST  
LONGUEUIL, QUEBEC  
J4N 1L7 **Tel. : 450 641-3330**

**Order** : 138058  
**Reference** : 40984  
**Bid** : 29016  
**Ship** : PICK UP / PICK UP

Customer : 6323336

## Ship To

DART AEROSPACE LTD  
1270, ABERDEEN STREET  
HAWKESBURY, ONTARIO  
K6A 1K7

Same

Tel.: 1 613 632-3336

Item No.	Description	Qty	Qty. Delivered	B/O Qty
	***** FACTURER E-MAIL ***** SUPER IMPORTANT SUR LE PACKING SLIP INSCRIRE LES HEAT N			
	***** FACTURER E-MAIL ***** SUPER IMPORTANT SUR LE PACKING SLIP INSCRIRE LES HEAT N			
	***** FACTURER E-MAIL ***** SUPER IMPORTANT SUR LE PACKING SLIP INSCRIRE LES HEAT N			
AS04024	ALU SHE .040 2024-T3 ALCLAD 2 pces 4" X 12' ***** ✓	2	2	Ø
	ht: 275893b6 AT			
SR584	304 ROU .625 DIA ✓ 2 x 12' r/l HT: 801C AT	24	24	Ø
SS112B4	304 SHEET .120 (11G) ✓ 2 x 4' x 8' HT: 854e AT	64	64	Ø
SR384	304 ROU .375 DIA ✓ 2 X 12' R/L HT: 1711164 AT	24	24	Ø
SR7164	304 ROU .437 DIA (7/16) ✓ 1 X 12, R/L HT: 594F AT	12	12	Ø
SR13	303 ROU 1.000 DIA ✓ 1 X 14' HT: 428631 AT	14	14	Ø
DT21818	MS TUB 2.125" X .125" WALL DOM ✓	12	12	Ø

\*\*\* Continued on Next Page \*\*\*

# KAISER ALUMINUM

Trentwood Works

PO Box 15108, Spokane Valley WA 99215-5108

15000 E Euclid, Spokane Valley WA 99216

Phone: (800) 367-2586

## CERTIFIED TEST REPORT

Serial Number

4517818

CUSTOMER PO NUMBER: U10893-13	WORK PACKAGE:	CUSTOMER PART NUMBER:	SHIP RUN/LOAD: 104326/3	GOV'T CONTRACT NUMBER:
KAISER ORDER NO: 1265351-13	SHIP DATE: 8-JUL-2018	ALLOY: 2024	CLAD: ALCLAD	TEMPER: T3
WEIGHT SHIPPED: 3297 LB	QUANTITY: 117 PCS EST.	TRUCK B/L #: 2074756	GUAGE: 0.0400 IN ( 1.0160 MM)	PRODUCT DESCRIPTION: HT Flat Sheet
			DIAMETER/WIDTH: 48.000 IN (1219.2 MM)	LENGTH: 144.000 IN (3657.6 MM)

MHU 2243723; LOT 275893B6: 117 pieces; 1455691

### Certified Specifications

✓ AMS4462/RevA  
CMMP 019/RevD

✓ AMS-QQ-A-250/5/RevB  
✓ CMMP 025/RevV

✓ ASTM B 209/Rev14

Test Code: 1505

Lot: 275893B6 Cast 679

Drop 39

Test Results

Ingot 2

Melted in USA

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T3	LT / 3 (Min:Max)	✓ 62.7 : 63.2 (432 : 436)	✓ 42.6 : 42.8 (294 : 295)	✓ 17.9 : 19.2

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.04 ✓	0.14 ✓	4.7 ✓	0.57 ✓	1.3 ✓	0.01 ✓	0.12 ✓	0.01 ✓	0.02 ✓	0.01 ✓	TOT 0.02

### ALLOY LIMITS

2024	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
MIN(wt%)	0.00	0.00	3.8	0.30	1.2	0.00	0.00	0.00	0.00	0.00	EACH	0.05
MAX(wt%)	0.50	0.50	4.9	0.9	1.8	0.10	0.25	0.15	0.05	0.05	TOT	0.15
Liner Alloy:	1230											
MIN(wt%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EACH	0.03
MAX(wt%)	0.25	0.30	0.10	0.05	0.05	0.03	0.05	0.03	0.03	0.03	TOT	0.00

Aluminum Remainder



Trentwood Works

PO Box 15108, Spokane Valley WA 99215-5108

15000 E Euclid, Spokane Valley WA 99216

Phone: (800) 367-2586

## CERTIFIED TEST REPORT

Serial Number

4517818

### CERTIFICATION

Kaiser Aluminum, Trentwood Works, is ISO 9001, AS9100, and ISO 14001 certified, and hereby certifies that all material shipped under this order:

- has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein.
- All test equipment and measuring devices are calibrated and certified in accordance applicable specifications. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements. Reported elongation values have been measured as elongation at fracture.
- was melted in the United States of America or a qualifying country per DFARS 225.872-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.
- has been thermally processed in compliance with AMS 2772, where applicable.
- is mercury free, within the limits of detection of ASTM E1215 ( $< 1 \text{ ppm}$ ).
- is in compliance with RoHS 2, European Union Directive 2011/65/EU.
- is in compliance with European Chemical Agency, ECHA, REACH regulations, (EC) No 1907/2006, and Kaiser regularly monitors these regulations for updates.
- is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.
- is free of weld repair.
- meets the reporting requirements of EN10204, Type 3.1.

Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

Michael Peske, PT Lab Process Engineer

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: 2024-T3 ALUMINUM SHEET

SPECIFICATION: QQA-250/4 OR AMS-QQ-A-250/4  
OR AMS-4697  
OR ASTM B209

PART NUMBER: M2024T3S-XXX THK

WHERE "XXX" = SHEET THICKNESS (IN INCHES)

EG 0.063" THICK SHEET = M2024T3S 063

PREFERRED SIZE: XXX BY 4FT BY 10FT

RELEASED  
2009-03-23  
MD

B		REFORMAT DWG. ADD ASTM B209 SPEC (2N DB-1), PAR 08-020A		CP	US 17 17
A		NEW ISSUE		DS	01 19 24
REV		DESCRIPTION		RY	DATE
DESIGN	DRAWN	DART AEROSPACE LTD		REV B	
CHECKED	MFG APPR	DRAWING NO		SHEET 1 OF 1	
APPROVED	DE APPR	M2024T3S		SCA F	
DATE	09 07 07	TITLE		NTS	
		2024-T3 SHEET SPEC			
		COPYRIGHT © 2009 BY DART AEROSPACE LTD			

## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M2024 735.040  
 DATE: 18/10/01

PO / BATCH NO.: P0010984/S114846

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 965F  
 QUANTITY INSPECTED: 965F  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.040"  
 THICKNESS RECEIVED: 0.040"  
 SHEET SIZE ORDERED: 4'x12'  
 SHEET SIZE RECEIVED: 4'x12'

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	N	
CORROSION	Y	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	N	ASTM B209
CORRECT THICKNESS	<input checked="" type="checkbox"/>	N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	N	MT: 27581386
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK.  
 RECORD RESULTS BELOW

	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/01</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



North American Stainless Canada Inc.  
740 Imperial Road North  
Guelph, ON N1K1Z3  
Canada

# METALLURGICAL TEST REPORT

6870 Highway 42 East  
Ghent, KY 41045-9615  
(502) 347-6000

Certificate: 412494 7

Date: 5/18/2018 Page: 1

Steel: 304/304L

Finish: CD

Your Order: C114497

NAS Order: PN 0093988 04 Heat Treat Code: 47,024

Corrosion: ASTM A262/15 Prac A/E OK

## PRODUCT DESCRIPTION:

Round Bar, Annealed, Cold Draw  
UNS 30400/30403 EN 10204 3.1, ASTM A484/16  
ASTM A276/17, ASTM A479/18, ASTM A182/16a CHEM ONLY,  
ASME SA479/18, ASME SA182/13 CHEM ONLY  
AMS 5639J, AMS 5647K, AMS Q08-763D, Q08-763P, ASTM F899/12b  
SOLUTION ANNEAL TEMP 1900F MIN, ASTM A320/17a CL 1 GR B8  
ASTM A193/16-ASME SA193/13 CL 1 GR B8

## REMARKS:

COMPLIES W/REQUIREMENTS OF DPAR 252.225-7009 EU DIRECTIVE  
2011/65/EU, ROHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG  
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

## Product Id

BJ5335 1

Weight	Length	Mark	Pieces	Commodity Code
1.296	144.00	35	1	

## CHEMICAL ANALYSIS

NAS Heat	CM	C %	CO %	CR %	ES(Spain)	US(United States)	ZA(South Africa)	JP(Japan)	Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323
801C	US	.016	.24	18.09	.43	1.40	.373	.065	8.50

CU %	NI %	P %
.032		

S %	SI %
.0244	.20

## MECHANICAL PROPERTIES

### Product Id

BJ5335 1

1 d o i c i	HB	.2YS KSI	UTS KSI	RA %	ELNG % 4D
RL	183.0	80.24	103.88	70.57	45.66

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical  
Dept. Mgr.

VDTC T ADV

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS ROUND BAR  
(NOTE: AISI 303 NOT ACCEPTABLE)

ASTM A276

M304R (D.D.D.)  
DIA. 1

WHERE "D.D.D." = DIAMETER IN INCHES  
EG. 0.75" ROUND BAR = M304R0 750

SPECIFICATION:  
PART NUMBER

RELEASED  
10/24/2014

B	REFORMAT DWG. ADD SPECS (ZN D6 1)	1/1	09.07.15
A	NEW ISSUE	AJS	08.01.03
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	W		
CHECKED	W		
MFG APPR	M304R		
APPROVED			
DE APPR			
DATE	09.07.15		
DART AEROSPACE LTD		REV. B	
HAWKESBURY, ONTARIO, CANADA		SHEET 1 OF 1	
TITLE		SCALE	
304/316 ROUND BAR		N'S	
COPYRIGHT © 1988 BY DART AEROSPACE LTD			

## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304RO.625  
 DATE: 18/10/03

PO / BATCH NO.: P0040984/S115486

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 24ft  
 QUANTITY INSPECTED: 24ft  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.625"  
 THICKNESS RECEIVED: 0.625"  
 SHEET SIZE ORDERED: -  
 SHEET SIZE RECEIVED: -

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	ASTM A276
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	MT: 801C
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>	<b>ENGINEERING SIGNOFF (if required)</b>
INSPECTED BY: <u>AK</u>	SIGNED OFF BY: _____
DATE: <u>18/10/03</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in





**6870 Highway 42 East  
Ghent, KY 41045-9615  
(502) 347-6000**

**Ship To:**

Date: 8/13/2018 Page: 1

Steel: 304/304L

Finish: 28

**Your Order: C715111**

WAS Order: WNI 0100010 03

**Corrosion: ASTM A262/15;180Bend-OK**

**PRODUCT DESCRIPTION:**

STAINLESS STEEL COIL, C.R. ANNEALED & PICKLED. UNS 30400/30403  
ASTM A240/17, A480/16b, A666/15; ASME SA240/17, SA480/17, SA666/17  
CHEM ONLY ON FOLLOWING ASTM: A276/17, A479/17, SA484/16, A312/16  
CHEM ONLY ON FOLLOWING ASTM: A312/13, SA479/13  
AMS 5516/5513 XHRK; MIL-5059D AND3(X CRN MEAS); MIL-4043B  
NANACE MR0175/ISO 15156-3:2009 A, MR0103/07; Q08766D-A X MAG PERM  
MAGN. SOLUTION ANNEAL TEMP 1900F WATER OVERHEAT

## REMARKS:

Mat'l is Free of Mercury Contamination. No weld repairs.  
 EN 12004:2004 3.1; RoHS 1 & 2 Compliant  
 Material is Free of Radioactive Contamination  
 Steel Making Process: EAF, AOD, & Cont. Casting  
 Product Mfg by a Quality Mgt. Sys. in Conf. w/ISO 9001  
 \*Melted & Manufactured in the USA; Mat'l is DFARS Compliant

Product Id	Coil #	Skid #	Thickness	Width	Weight	Length	Mark	Pieces	Commodity Code
02854E CK	03854E C		.1200	48.0000	1.076	SHEETS		096.00	7

# CHEMICAL ANALYSTS

ANAB, ISO/IEC 17025, Certificate# L2323  
Chemical Analysis per ASTM A751/14a

[illegible]

## MECHANICAL PROPERTIES

Product ID#	Coil #	1 d o i c r	UTS KSI	20C KSI	.2% YS KSI	20C ELONG % 2"	% Hard RB	Tail Hard
02854E CK	02854E C	F T	92.28	42.79	54.85	84.00	86.00	

IAS hereby certifies that the analysis on this certification is correct. Based upon the test method, the test results are as follows:

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical  
Dept. Mgr.

KRIS LARK

8/13/2018

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SHEET  
ANNEALED

SPECIFICATION:

MIL-S-5059  
OR AMS 5513 (304)  
OR AMS 5524 (316)  
OR ASTM A240  
OR ASME SA240

FINISH

FINISH  
UNPOLISHED No. 1  
UNPOLISHED No. 2D  
UNPOLISHED No. 2B  
POLISHED No. 3  
POLISHED No. 4  
BUFFED No. 5  
BUFFED No. 6  
BUFFED No. 7  
BUFFED No. 8

DART MANUFACTURER  
IDENTIFIER  
1P  
2D  
NONE  
3P  
4P  
6P  
7P  
8P

PART NUMBER:

M304S1TT GA #P  
GA

WHERE "TT" = GAUGE THICKNESS  
WHERE "P" = FINISH IDENTIFIER

EG. 16 GAUGE SS SHEET 2B FINISH = M304S16GA  
EG. 16 GAUGE SS SHEET No. 4 POLISHED = M304S16GA4P

GAUGE THICKNESS REFERENCE:

GAUGE	NOM. THICK. (IN)	THICKNESS RANGE (IN)
26	0.01875	0.0178 - 0.019
25	0.021875	0.0199 - 0.023
24	0.025	0.024 - 0.026
23	0.028125	0.027 - 0.029
22	0.03125	0.030 - 0.032
21	0.034375	0.033 - 0.035
20	0.0375	0.036 - 0.040
19	0.04375	0.041 - 0.046
18	0.050	0.047 - 0.052
17	0.05625	0.053 - 0.058
16	0.0625	0.059 - 0.065
15	0.0703125	0.066 - 0.072
14	0.078125	0.073 - 0.083
13	0.09375	0.084 - 0.098
12	0.109375	0.099 - 0.114
11	0.125	0.115 - 0.130
10	0.140625	0.131 - 0.145
9	0.15625	0.146 - 0.160
8	0.171875	0.161 - 0.176
7	0.1875	0.182 - 0.194
6	0.2031	0.194 - 0.212
5	0.2188	0.201 - 0.226
4	0.2344	0.225 - 0.243
3	0.2500	0.238 - 0.262
2	0.2656	0.254 - 0.276
1	0.2813	0.269 - 0.293
0	0.3125	0.301 - 0.326

RELEASED

2015 FEB 04

ECN 13 122 9

REV	DESCRIPTION	DATE
D	ADDED GAUGES 0-7	15 01 06
C	DEFINED FINISH OPTION (ZN CR) AND EXAMPLE OF MATERIAL FIN WITH FINISH OTHER THAN 2B (ZN 85)	12 09 20
B	REFORMAT DWG. ADD ASTM/ASME SPECS (ZN DB-1), ADD GAUGE REF. (CB-1), REF PAR 08-020A	09 06 01
A	NEW ISSUE	01 09 24
DESIGN	DS	BY
DRAWN	AJS	DATE
CHECKED		
MFG. APPR.	DRAWING NO. M304S	REV. D
APPROVED	TITLE	SHEET 1 OF 1
DE APPR.	304/316 SS SHEET	SCALE
DATE	15 01 06	NTS

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## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304S116A  
 DATE: 18/10/01

PO / BATCH NO.: P0040184 / 5114838

MATERIAL CERT REC'D: KE  
 QUANTITY RECEIVED: 645F  
 QUANTITY INSPECTED: 645F  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.125"  
 THICKNESS RECEIVED: 0.120"  
 SHEET SIZE ORDERED: 8'x4'  
 SHEET SIZE RECEIVED: 8'x4'

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT FINISH	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORROSION	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT GRAIN DIRECTION	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT MATERIAL PER M-DRAWING	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	ASTM A240
CORRECT THICKNESS	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
PHOTO REQUIRED	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT REF # TO LINK CERT	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	HT: 8546
CORRECT MATERIAL IDENTIFICATION	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
CORRECT M# ON THE MATERIAL	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>	<b>ENGINEERING SIGNOFF (if required)</b>
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/01</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



# CHANDAN STEEL LIMITED

(GOVT. OF INDIA RECOGNISED EXPORT HOUSE)

ISO 9001 : 2008 CERTIFICATE No. 01 100811022

ADM. OFFICE: SRI, SURESH SAGAR, P. S. PATKAR MARG, MUMBAI 400 027, INDIA

Tel.: 91-22- 66290600, Fax.: 91-22-66290633/34

Website : www.chandansteel.net

Email : csi@chandansteel.net

I/c. No.3

I/c. Date:

WORKS: PLOT NO. 31 TO 36, 45, 46, 48, & 49/2, 192

(EXP. AREA) GIDC, UMBERGAON & SURVEY NO. 102/2 & 3, VILLAGE II,

DEHARI, TALUKA: UMBERGAON, DIST: VALSAD, GUJARAT - 396171

GSTIN - 24AAACC4719812G

F824 QC 09A / 02 / 10.12.2012

## MILL TEST / INSPECTION CERTIFICATE 3.1 ACCORDING TO EN 10204 : 2005

Test Certificate No. : EXP/01152 - 06/2017-2018  
Date of Issue : 03.01.2018  
P. O. No. : MN5942  
SC No. & Date : 17-18/00447, Dt. 08.11.2017  
Invoice No. & Date : EXP/01152/2017-18 Dt. 03.01.2018

PRODUCT DESCRIPTION				LENGTH		Net Wt.
STAINLESS STEEL ROUND BARS				Ordered	Actual	2965 Lbs.
Heat No.	Grade AISI	Size mm/inches	Tolerance	12' - 14'	12' - 14'	
1711164	304L	3/8"	h9			
				Process Route		
				Electric Melting, A.O.D. Refining, Continuous Casting		

### CHEMICAL COMPOSITION (Weight %)

	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	N
Min.	-	-	-	-	-	18.00	-	8.00	-	-	-
Max.	0.030	1.00	2.00	0.045	0.030	20.00	-	12.00	-	-	-
Results	0.028	0.37	1.57	0.039	0.016	18.55	-	8.04	-	-	-

### MECHANICAL PROPERTIES

Specified Value	Yield Strength N/mm <sup>2</sup> /MPa (Rp0.2)	Tensile Strength N/mm <sup>2</sup> /MPa (Rm)	Elongation %	Reduction of Area %	Hardness (HB)
Min.	310	620	30	40	-
Max.	-	-	-	-	-
Results	615	786	36	65	239-242

### Remarks:

1. Cold drawn & Centreless Ground.
2. Solution annealed at 1050 °C.
3. PMI test done 100% & found Satisfactory.
4. Material is free from radio-active contamination.
5. Inter-Granular Corrosion Test as per ASTM A262 - 15 (Pr.E) satisfactory.
6. The material conforms to ASTM A276-15/A182-16/A479-15 & ASME SA479-13 Specifications.
7. Location of sample - Centre, Direction - Longitudinal, Test Temp. - Room Temp., Shape of Test Piece - Round.
8. Marking details - Company Logo, Size, Grade & Heat No.
9. The material is manufactured/melt in Chandan Steel Mill and is of Indian Origin.
10. No welding/weld repairs was performed on this material.

BUNDLE NO.: 21 & 22



*[Signature]*

B. S. RAUTBLA  
MANAGER - QUALITY ASSURANCE

It is hereby certified that the above results are true and correct in every details and are meeting the requirements of specification & purchase order.

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS ROUND BAR  
(NOTE: AISI 303 NOT ACCEPTABLE)

SPECIFICATION

PART NUMBER

ASTM A276  
M304R/D DDD  
DIA. 1

WHERE "D.DDD" = DIAMETER IN INCHES  
EG 0.75" ROUND BAR = M304R0.750

RELEASED  
R 08/25/14

B	REFORMAT Dwg. ADD SPECS (ZN D6-1)	CP	09.07.15
A	NEW ISSUE	AJS	08.03.03
REV	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	GA		
CHECKED	GA		
MFG. APPR.	M304R		
APPROVED	MD		
DE APPR.	MD		
DATE	09.07.15		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M304R			
REV. B			
SHEET 1 OF 1			
SCALE NTS			
304/316 ROUND BAR			
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# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M204R0.375  
 DATE: 18/10/03

PO / BATCH NO.: P0240984/S115487

MATERIAL CERT REC'D: 165  
 QUANTITY RECEIVED: 245t  
 QUANTITY INSPECTED: 245t  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.375"  
 THICKNESS RECEIVED: 0.375"  
 SHEET SIZE ORDERED: -  
 SHEET SIZE RECEIVED: -

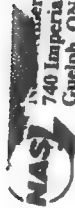
DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	ASTM A276
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	MT: 1711164
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>	<b>ENGINEERING SIGNOFF (if required)</b>
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/03</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



740 Imperial Road North  
Guelph, ON N1K1Z3  
Canada

# METALLURGICAL TEST REPORT

6870 Highway 42 East  
Ghent, KY 41045-9615  
(502) 347-6000

Certificate: 362259 1

207142

Date: 12/11/2017 Page: 1  
Steel: 304/304U  
Finish: CD

Your Order: C113029

NAS Order: IN 0256557 01

Heat Treat Code: 44, 429

Corrosion: ASTM A262/15 Prec A/E OK

## PRODUCT DESCRIPTION

Round Bar, Annealed, Cold Draw  
UNS-30400/30403 EN 10204 3.1, ASTM A484/16  
ASTM A276/17, ASTM A479/17, ASTM A182/16a CHEN ONLY,  
AMS 5639J, AMS 5647J, AMS 5647J, AMS 5647J, AMS 5647J,  
SOLUTION ANNEAL TEMP 1900F MIN, ASTM A320/17a CL 1 GR B8  
ASTM A193/10A-ASME SA193/10 CL 1 GR B8

## REMARKS:

COMPUTER W/EQUIPMENTS OF DYAR 252.225-7009 EU DIRECTIVE  
2011/65/EU, ROHS. EAF+AD+CC. NO WELD REPAIR. RELATED AND NOFG  
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Product Id	Skid #	Diameter	Size	Weight	Length	Mark	Pieces	Commodity Code
BJ1604 9		.4375		654	144.00	1	1	

## CHEMICAL ANALYSIS

NAS Heat	CM	C %	CO %	CR %	CU %	MM %	MO %	N %	NI %	P %
594F	US	.020	.23	18.13	.36	1.44	.293	.071	8.60	.030
		S %	SI %							
		.0285	.24							

## MECHANICAL PROPERTIES

Product Id	1 4	0 1	HB	Mo.	2YS	UTS	KSI	RA	%	Elong
BJ1604 9	R L	233.0	77.29	108.45	70.50	41.00				

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical

Page: 1

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS ROUND BAR  
(NOTE: AISI 303 NOT ACCEPTABLE)

A. SPECIFICATION  
PART NUMBER: ASTM A276  
M304R0.DDD  
DIA.

WHERE "D.DDD" = DIAMETER IN INCHES  
EG 0.75" ROUND BAR = M304R0 750

RELEASED  
11/25/25

B	REFORMAT DWG. ADD SPECS (2N D6-1)	CP	09 07 15
A	NEW ISSUE	AJS	08 03 14
REV	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	QA		
CHECKED			
MFG APPR	M304R		
APPROVED			
DE APPR			
DATE	09.07.15		
DART AEROSPACE LTD HAWKESBURY, ONTARIO CANADA			
REV. B			
SHEET 1 OF 1			
SCALE			
304/316 ROUND BAR			
NTS			
COPYRIGHT © 2008 BY DART AEROSPACE LTD			



## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304R0.4375

PO / BATCH NO.: P0040984/S115488

DATE: 18/10/23

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 0.4375"

QUANTITY RECEIVED: 12ft

THICKNESS RECEIVED: 0.4375"

QUANTITY INSPECTED: 12ft

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	AS1M. A276
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	MT. 594F
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: _____	SIGNED OFF BY: _____
DATE: _____	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



38100 VICENZA (Italia) - Viale della scienza, 25 z.s.  
Telefono 0444.988211 - Fax 0444.983838  
Slab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37  
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a: EN 10204 (2004), 3.1  
 secondo la norma EN 10204 (2004), 3.1

Certificato nr. **MEST919213 / 2016 /**  
Primaria/Teșinești

Stato di fornitura : Hot rolled - Annealed Cold Drawn

Produttore :  
Herbolsteiner, Uslon, Praga, cina

**ACCIAIERIE VALBRUNA S.P.A.**

Ordine nr. 603005705 Stock - Canada  
Desire  
Your order  
Confirmation

**Tipo di Elaborazione:** E+AOD

**Marchi di Fabbrica:**  
Zeus e la L'Espresso Trade marks  
© 1986 G&P Publishing

Conferma ordine nr. E16003144  
www.ozim.it

Qualità: 303HS  
Versione: 303HS

**Punzana del Collaudatore:**  
 Sempre con l'occasione di un  
 ispirato stampante di lavoro

Avviso di Spedizione: D-VI16021604  
L'editore si riserva il diritto di ristampare l'opera in tutto o in parte.

Marca: **MV188ZHS MAXIVAL**  
 MarcaBurg.com.pe  
 Brand Finance

Punzonatura: 303HS  
Kannengrube  
Mening  
Meninge

**SPECIFICHE:**

Anforderungen / Requirements / Edizione

**Note:**

**ANALYTICAL REAGENTS**

VSI 0.303 HS A,CF

AMS 5640 V S30300 A

AMS 5640 V TYPE 1 A

ASME SA320 2015 B8F (D)

ASTM A314 2015 S30300

ASTM A320 2015A B8F (1)

ASTM A370 2015

ASTM A582 2012 S30300 A  
MIL-8832 B1 225

MIL-S-852 B/1 303  
QQ-S-764 B/2 303

QC-3-764 B/2 303 A

Tolleranza: ASTM A484-16 TABLE 7

Pos. nr.	Oggetto	Dimensioni - in	Lunghezza - in	Colata	Pezzi	Peso - LB	Lotto nr.
Pos. nr. Pos. nr. Pos. nr.	Descrizione Descrizione Descrizione	Altezza Larghezza Profondità	La parte La parte La parte	Altezza No di Cilindrata	Unità Pezzi Pezzi	On Peso Peso	Lotto Lotto Lotto
0010	Round	1,0000	146/ 147	428631		2.238	613408080

**TEST ALLO STATO DI FORNITURA**

**TEST ALLO STATO DI FORNITURA**

Test on delivery condition	Prüfung auf Lieferbareitem produkt	Isti a rotai de furnitura	Prova sobre el material esi come entregado
Posi	Servomasta		

TEST ALLO STATO DI FORNITURA																			
TEST		Prova/Articolo Sperimentazione Long term tests Burst tests Water Dam. Tests Long term tests		°F		Sneramento Tensile Tensile strength Rp 0.2%		Sneramento Tensile Tensile strength Rp 0.2%		Resistenza Tensile strength Tensile strength		Allungamento Elongation Elongation		Strizione Compression Compression Striction		Resistenza Tensile strength Tensile strength		Durezza Hardness Hardness	
Valori richiesti		min		max		-		-		-		-		-		-		140	
max		max		max		-		-		-		-		-		-		255	
A	12.5	68	L	73				102			42			\$7			252		
TEST ALLO STATO DI FORNITURA																			

**TEST ALLO STATO DI FORNITURA**

TEST

TEST			
A Grain size for ASTM E112	min	max	
Mechanical properties according to ASTM A370			6

## Analisi chimica

Chemische Elementanalyse / Chemical Analysis / Analyse chimique

Chemical Analysis Certificate													
Order No.	Material	Analysis	Result	Unit	Analysis	Result	Unit	Analysis	Result	Unit	Analysis	Result	Unit
428631	C %	0.040			Si %	0.37			Mn %	1.92			
					Cr %	17.41			Mo %	0.53			
					Cu %	0.60			Ni %	8.24			
					Co %	0.090			P %	0.030			
					S %	0.33			Zr %	0.0039			

Vicenza, 05/09/16

VC0003 - MEST919213

(Mod: NCE7)

Il collaudatore di stabilimento / der Werksachverständige / Works Inspector / L'agent d'usine

M. Rizzotto, *Kent*

Pagina - 1 di 2

33871

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 303 SS ROUND BAR  
(NOTE: AISI 304/316 NOT ACCEPTABLE)

ASTM A582  
M303R0.750  
DIA.

SPECIFICATION:  
PART NUMBER:

WHERE "O.D.D." = DIAMETER IN INCHES  
EG. 0.75" ROUND BAR = M303R0.750

RELEASED  
R 2010-02-02  
NR

REFORMAT DWG. ADD SPECS (ZN D8-1) REF PAR 08-020A		CP	10 01 05
NEW ISSUE		DS	01 12 20
DESCRIPTION		BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG APPR			
APPROVED			
DE APPR			
DATE	10 01 05		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO M303R		REV. B	
TITLE 303 ROUND BAR		SHEET 1 OF 1	
DATE		SCALE	
10 01 05		NITS	
COPYRIGHT © 2001 BY DART AEROSPACE LTD			

## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M303R1.000  
 DATE: 18/10/03

PO / BATCH NO.: P0040984/S115489

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 1254  
 QUANTITY INSPECTED: 1254  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 1.000"  
 THICKNESS RECEIVED: 1.000"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	Y N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	Y N	
CORRECT MATERIAL PER M-DRAWING	Y N	ASTM A582
CORRECT THICKNESS	Y N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	Y N	HT: 428631
CORRECT MATERIAL IDENTIFICATION	Y N	
CORRECT M# ON THE MATERIAL	Y N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>	<b>ENGINEERING SIGNOFF (If required)</b>
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/03</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# Innoventive Industries Limited

Regd. Office : Gat No. 1261, Sanpawadi, Pune- Nagar Road, Tal- Shirur, Dist- Pune 412 208  
 Maharashtra (India) Tel. : +91-2137-669001/669002 Fax: +91 2137 669014  
 Mega Project : Gat No.56/3, 4, 5, Village Pimple Jagtap, Tal. Shirur, Dist. Pune- 412 208  
 Maharashtra (India) Tel.: +91 2137 617042

## MATERIAL TEST REPORT

Format No.: QA/FRISA  
 Rev.No.: 04 Ch.Dat: 16.03.2013

CUSTOMER NAME : SALEM STEEL NA, LLC  
 ADDRESS : 80 RT 4 EAST, SUITE 169 PARAMUS, NJ 07652  
 PURCHASE ORDER NO & DATE: AR14014-RM ON DTD. 27 FEB. 2014

T.C.No.EXP/ 2976  
 DATE :- 31.03.2014

PRODUCT : ELECTRIC RESISTANCE WELDED CARBON STEEL  
 MECHANICAL ROUND TUBING

HEAT NO:- 14300499  
 COIL NO. :- 24C018  
 SUPPLIER NAME:- JSW ISPAT STEEL LTD.  
 CITY:- RAIGAD  
 COUNTRY:- INDIA

SIZE ( INCH ) :- 2.125 1.885  
 0.0 1.0.

Outer Diameter (Inch)	2.125	Specification: AS PER ASTM A513-76, 1020 Stress Relieved (2012)
Inside Diameter (Inch)	1.885	Grade:- 1020
Thickness (Inch)		Total Feet : 676.42
Length (Feet)	17-19	NO. Of Tubes (Nos.) 37

Chemical Analysis	%C	%Mn	%Si	%S	%P	%Al	%Ni	%Cr	%Mo
Specification	Min. Max	Min. Max	Min. Max	Min. Max	Min. Max	Min. Max	Min. Max	Min. Max	Min. Max
Observation	0.18 0.24	0.3 0.6	0.02 0.06	0.005 0.025	0.015 0.046	0.005 0.012	0.012 NA		

Mechanical Properties	Yield Strength In PSI	Tensile Strength In PSI	% Elongation	Hardness HRB
	Min. Max	Min. Max	Min. Max	Min. Max
Specification	55000 78000	65000 80000	18 26	78 83
Observed	70063	82038		

Dimensional Report	Outer Diameter In Inch	Inner Diameter In Inch
	Min. Max	Min. Max
Specification	2.125 2.132	1.878 1.885
Observations	Sample 1 2.127 2.128	1.880 1.881
	Sample 2 2.126 2.127	1.879 1.880
	Sample 3 2.128 2.129	1.881 1.882

### VISUAL PARAMETERS :-

NO Scratch/Line mark - checked & Found OK  
 NO Roll/Pickup mark - checked & Found OK  
 NO Pit/Dent/Damage/Crack - checked & Found OK  
 100% ECT(NDT) Done As per SB.2.1 - AS13 12: - checked & Found OK

NOTE :- 1) Tubes conforms to specification 'Mercury Free'

2) Chemical composition have been verified from Raw material inspection records(RM Mill TC) & Spectro testing at IIL

Packing Details :

AR14014-RM - 3 - 1

Checked By :  
 Sign :  
 Name : Suchana N.

Approved By :  
 Sign :  
 Name : D.LAAD

QC RECEIVED

OCT 02 2014

adm 2.125 x .120 x 1.885

2 1/8" X .120  
 D.O.M.  
 2 1/8" X .120



DESIGN JT	DRAWN BY JT	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED JT	APPROVED JT	DRAWING NO. M1020TR	REV. A SHEET 1 OF 1
DATE 05.01.19		TITLE AISI 1020-1025 TUBING	SCALE N/A
A	05.01.19	NEW ISSUE	

RELEASED  
05 01 21 JT

PURCHASE MATERIAL: AISI 1020-1025 TUBING PER MIL-T-1000  
OR ASTM A513-00 TUBES 0.400" O.D. X 0.075" WALL  
AMS 5077, COLD DRAWN

PART NUMBER: M1020TR | L.DDD | W | .TTT | WHERE L.DDD = O.D. (IN INCHES),  
O.D. | WALL | .TTT = WALL THICKNESS (IN INCHES)

EG 0.50" X 0.075" WALL = M1020TR0.750W.125

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# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M1020TR2.125W.120  
 DATE: 18/10/03

PO / BATCH NO.: P0040984/S115490

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 12ft  
 QUANTITY INSPECTED: 12ft  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 2.125"  
 THICKNESS RECEIVED: 2.125"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	ASTM A513
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	MT: 14300448
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

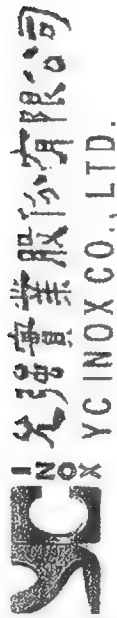
CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>		<b>ENGINEERING SIGNOFF (if required)</b>	
INSPECTED BY: <u>AT</u>		SIGNED OFF BY: _____	
DATE: <u>18/10/03</u>		DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

002336



## INSPECTION CERTIFICATE

EN 10204-3.1:2004

No.270,Sec.4,Jungshan Rd.,Shijou Shiang,  
Chang-Hwa,Taiwan,R.O.C  
http://www.ycinox.com  
TEL : +886-4-8899666 FAX : +886-4-8899770



Customer		Customer No.	FCA027	Certificate No.	180718P0113
Product	STAINLESS STEEL WELDED TUBE	Commercial Invoice No.	J18070022	Date of Issue	2018/07/18
Specification	ASTM A553-16	PO No.	P010185	Order No.	EP18050236-1
Steel Grade	MT-804	Finish	MILL	Weight No.	C18070248

Item No.	Heat No.	Product Description	Chemical Composition(%)										Tension Test				*01			
			Dimension							Quantity Pcs			Tension Test							
			Specification																	
			Min.														HRB			
			Max.																	
1	TBK060596	3/4"(19mm)x3/4"(19mm) x 0.049"(1.25mm) x 20FT	200	80	100	200	45	30	1100	2800										
2	TBK060634	1"(25.4mm)x1"(25.4mm) x 0.12"(3.05mm) x 20FT	100	54	42	106	33	2	811	1814	294	674	58	294	674	58	87			
3	TBK062680	1 1/4"(31.8mm)x1 1/4"(31.8mm) x 0.12"(3.05mm) x 20FT	100	54	45	107	31	2	804	1821	308	672	53	308	672	53	85			
4	TBK053580	1 1/2"(38.1mm)x1 1/2"(38.1mm) x 0.12"(3.05mm) x 20FT	25	44	45	82	33	2	809	1801	277	638	55	277	638	55	83			
5	TBK071170	1 1/2"(38.1mm)x1 1/2"(38.1mm) x 0.12"(3.05mm) x 20FT	42	54	45	107	31	2	804	1821	308	672	53	308	672	53	85			
6	TBK061191	2"(50.8mm)x2"(50.8mm) x 0.12"(3.05mm) x 20FT	83	24	52	163	29	1	800	1810	292	648	55	292	648	55	86			
7	TBK061209	2"(50.8mm)x2"(50.8mm) x 0.12"(3.05mm) x 20FT	30	54	45	107	31	2	804	1821	308	672	53	308	672	53	85			
8	TBK062452	2"(50.8mm)x2"(50.8mm) x 0.12"(3.05mm) x 20FT	90	44	52	86	38	3	807	1831	268	627	56	268	627	56	81			
9	TBK051018	2"(50.8mm)x2"(50.8mm) x 0.180"(4.57mm) x 20FT	30	44	45	82	33	2	809	1801	277	638	55	277	638	55	83			
10	TBK051809	2"(50.8mm)x2"(50.8mm) x 0.180"(4.57mm) x 20FT	20	22	38	139	20	3	803	1821	299	640	55	299	640	55	83			
11	TBK050322	2"(50.8mm)x2"(50.8mm) x 0.250"(6.35mm) x 20FT	30	20	40	140	34	1	804	1814	309	643	54	309	643	54	84			
12	TBK060323	2"(50.8mm)x2"(50.8mm) x 0.250"(6.35mm) x 20FT	15	44	48	87	31	4	813	1810	297	612	57	297	612	57	84			
13	TBK041093	2 1/2"(63.5mm)x2 1/2"(63.5mm) x 0.180"(4.57mm) x 20FT	10	44	48	87	31	4	813	1810	297	612	57	297	612	57	84			
14	TBK041092	2 1/2"(63.5mm)x2 1/2"(63.5mm) x 0.250"(6.35mm) x 20FT	10	22	40	142	29	2	804	1810	322	652	53	322	652	53	87			
15	TBK020282	3"(76.2mm)x3"(76.2mm) x 0.12"(3.05mm) x 20FT	10	53	55	87	33	3	808	1813	322	649	54	322	649	54	88			
16	TBK070341	3"(76.2mm)x3"(76.2mm) x 0.12"(3.05mm) x 20FT	15	23	40	139	28	1	804	1808	318	648	54	318	648	54	86			
17	TBK051779	3"(76.2mm)x3"(76.2mm) x 0.180"(4.57mm) x 20FT	15	45	47	86	32	2	811	1820	283	632	54	283	632	54	83			
18	TBK040233	4"(101.6mm)x4"(101.6mm) x 0.12"(3.05mm) x 20FT	20	20	40	140	34	1	804	1814	308	643	54	308	643	54	84			
19	TBK061999	4"(101.6mm)x4"(101.6mm) x 0.12"(3.05mm) x 20FT	6	47	42	90	35	6	812	1819	270	617	56	270	617	56	80			
		TOTAL:	760	44	52	86	38	3	807	1831	268	627	56	268	627	56	81			

Remark			Tensile test value references to raw material. Hardness test value references to raw material.										Note			
Surveyor By			Visual Inspection(Surface) and Dimension Check : OK										1MPa=1N/mm <sup>2</sup> =10bar=145psi=10.2kgf/cm <sup>2</sup>			
N/A			We hereby certify that material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification. The material described above has been found free of radiation by raw material supplier.										1. ISO 9001:2015 (No.01 100 056298) 2. PED / AD2000 (No.01 202 TUN/Q-05 0105) 3. ISO 14001:2004 (No.01 104 822 096385) 4. OHSAS 18001:2007 (No.01 113 822 096385)			
			9 / 12										Manager of Quality Assurance Department			
													Jay Chen			

YC-2Q007-010



PURCHASE MATERIAL: AISI 304/316 STAINLESS STEEL SQUARE TUBING

FINISH: ASTM A554 MILL FINISH  
OR ASTM A289 MILL FINISH

PART NUMBER: M304TS | A.AAA | W | TTT | WIDTH | WALL

PART NUMBER: EG. 0.75" X 0.75" X 0.049 WALL = M304TS0.750W.049

WHERE: A.AAA = WIDTH IN INCHES  
TTT = WALL THICKNESS IN INCHES

RELEASED  
2014-05-26

D	"SEAMLESS" REMOVED FROM PURCHASE MATERIAL SPECIFICATION (SEE NCR14-3816)	DB	14.05.20
C	"SEAMLESS" ADDED TO PURCHASE MATERIAL ASTM A289 ADDED TO FINISH. REASON: SPEC ADDED FOR 1/2" TUBING	AJS	09.10.18
B	DRAWING MOVED TO "B" SIZE BORDER FINISH ADDED (SEE NCR 08-045 FOR DETAILS)	AJS	06.08.28
A	NEW ISSUE	DS	01.08.08
REV.	DESCRIPTION	BY	DATE
DRAWN	DS	DB	
CHECKED	DB		
MFG. APPR.	DRAWING NO		REV. D
APPROVED	M304TS		SHEET 1 OF 1
DATE	14.05.20		SCALE
			NONE

DART AEROSPACE LTD  
HAMPSHIRE, ONTARIO, CANADA

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## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304 150.750W.044  
 DATE: 18/10/03

PO / BATCH NO.: P0040984/5115441

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 600ft  
 QUANTITY INSPECTED: 600ft  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.750"  
 THICKNESS RECEIVED: 0.750"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	ASTM A554
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	HT: TBR060596
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/03</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

Ye fong



Certified Test Report

Aluminium Industrial LTD.

#12-10, Dongshi, Dongming Village,  
Xinwu Dist., Taoyuan, Taiwan

<http://www.ye-fong.com/>

[alu@ye-fong.com](mailto:alu@ye-fong.com)

+886-3-477-3677

Cert No: 180517021

Customer PO Number:	Customer Part Number:	Alloy-Temper:	Dimension:
18012/10036	1/2" X .058" X 12'	6061-T6	12.7X1.47X3658L
Cast Number:	M/O (LOT NO.):	Weight:	Quantity: Product Description:
171229A6	180208001-3	614.03LB	540pcs Drawn Seamless Tube
Sold to:	Ship to:		
AluSil International	AluSil International		
Specification:			
ASTM B210-12; AMS-WW-T-700/6C; AMS 4082P			

Chemical Composition Limits (in weight %)

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	OtherMax	OtherTotal	Al
Max	0.5	0.7	0.4	0.15	1.2	0.35	0.25	0.15	0.05	0.15	Rem
Min	0.1	0	0.15	0	0.3	0.04	0	0	0	0	Rem
Actual	0.578	0.193	0.25	0.0298	0.908	0.125	0.0226	0.021	0.0145	0.0271	Rem

Physical Properties

	U.T.S	Y.T.S	Elongation	Hardness	EC
Requirement	≥ 42	≥ 35	≥ 12		
Actual	47.94	43.47	12.2	56.0	
Unit	ksi	ksi	%	HRB	

Notes:

1. We certify that the material is free from mercury contamination.
2. Country of Origin: Made in Taiwan.

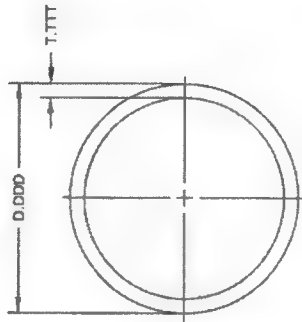
We hereby certify that the material covered in this report has been inspected in accordance with, and has been found to meet the applicable requirements described herein, including specifications forming a part of description. Manufactured in Taiwan and under a quality management system certified to ISO9001, TS16949, AS9100 and NADCAP.

Brian Yang

, Quality Manager

Date: 17 May 2018

QP-014-30-02



PURCHASE MATERIAL:  $\triangle C$  6081-T6/T62/T6510/T6511 SEAMLESS TUBING

SPECIFICATION: WW-T-7008  
OR QQ-A-200/8 OR QQ-A-225/8  
OR AMS 4083 OR AMS 4082 OR AMS 4083  
OR ASTM B210 OR ASTM B241  $\triangle C$

PART NUMBER: M6081T6TD.DDD/WT.TTT  
OD WALL

WHERE "D.DDD" = OD IN INCHES  
"T.TTT" = WALL THICKNESS  
EG. 3/8" OD X 0.058 WALL = M6081T6T0.375W0.058  
MATERIAL TOLERANCE: PER ANSI H35.2  $\triangle C$

RELEASED  
2013-07-02  
W

C	COMPLETE REFORMAT, ADDED T6510 & T6511. ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.08.12
B	ADD QQ-A-200/8 & QQ-A-225/8	OP	04.01.23
A	NEW ISSUE	DS	01.08.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED	W		
MFG. APPR.	M6081T6T		
APPROVED	W		
DE APPR.	W		
DATE	13.06.12		
	6081-T6 TUBING		
	SCALE		
	NTS		

DART AEROSPACE LTD  
HAWKESBURY, ONTARIO, CANADA

REV. C  
SHEET 1 OF 1

TITLE  
6081-T6 TUBING

SCALE  
NTS

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## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M606176T0.500W.058

PO / BATCH NO.: P0040984/S115442

DATE: 18/10/03

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 0.500"

QUANTITY RECEIVED: 16844

THICKNESS RECEIVED: 0.500"

QUANTITY INSPECTED: 16844

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	ASTM B210
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	MT. 17122946
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/03</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

CERTIFICAT D'ANALYSE

DART AEROSPACE LTD  
1270, ABERDEEN STREET  
HAWKESBURY, ONTARIO  
K6A 1K7

25 sept. 2018

Part Number / Description	Shipped Qty
---------------------------	-------------

MST30000

4,232 Pounds

Plate 3 4140/42 Prehard

34.18750 x 144.31250

ASTM A-829

DFARS Compliant

Country of Origin: SLOVENIA

Lot: 426556A

PM Heat: 94802

BHN: 304

C: 0.4080

Mn: 0.7580

P: 0.0080

S: 0.0010

Si: 0.2350

Cr: 0.9500

Mo: 0.1800

Cu: 0.2500

V: 0.0350

Ni: 0.1100

ITEM 3: 1 X 3.5" X 96"

COMMANDE: 138058

REF: 40984

Métaux Solutions inc. certifie que les analyses sur ce document sont exactes et que le matériel rencontre les spécifications énumérées.

*M. Paquette*  
Préparé par

8 7 6 5 4 3 2 1

REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE	18-544	18-2-13	VM	MI

**SPECIFICATION CONTROL DRAWING**

PURCHASE MATERIAL : AISI 4140 / 4142 STEEL SHEET OR PLATE  
MINIMUM ROCKWELL C = 28 Rc  
MAXIMUM ROCKWELL C = 32 Rc

SPECIFICATION: ASTM A829 AMS 6395

PART NUMBER:  
MT-4140-S-T.TTT x W.WWWW  
WHERE "T.TTT" = THICKNESS IN INCHES  
WHERE "W.WWWW" = WIDTH IN INCHES (OPTIONAL FOR SPECIFYING CUT PLATE)

EX. 0.063" THICK SHEET = MT-4140-S-0.063  
EX. 3.5" WIDE BY 0.500" THICK PLATE = MT-4140-S-0.500X3.500



TITLE		AISI 4140 / 4142 STEEL SHEET OR PLATE	
PART NO	REV	A	
TOOL NO		MT-4140-S	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DIMENSIONS APPLY TO ALL PARTS DIMENSIONS APPLY TO ALL PARTS			
DESIGNED BY	DATE	DESIGNED BY	DATE
VM 27/3/2018	27/3/2018	VM 27/3/2018	27/3/2018
CHECKED BY	DATE	CHECKED BY	DATE
VM 02/13/2018	02/13/2018	VM 02/13/2018	02/13/2018
APPROVED BY	DATE	APPROVED BY	DATE
MI 02/13/2018	02/13/2018	MI 02/13/2018	02/13/2018
SCALE: NTS		SHEET 1 OF 1	
COPYRIGHT © 2018 BY DART AEROSPACE LTD			

*note*

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140-S-3.000x3.500

PO / BATCH NO.: P0040184 / 5115 493

DATE: 18/10/03

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 3.000"

QUANTITY RECEIVED: 8ft

THICKNESS RECEIVED: 3.000"

QUANTITY INSPECTED: 8ft

SHEET SIZE ORDERED: -

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: -

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/>	
CORRECT FINISH	<input checked="" type="radio"/>	N	
CORROSION	Y	<input checked="" type="radio"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/>	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/>	N	ASTM A-829
CORRECT THICKNESS	<input checked="" type="radio"/>	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/>	N	MT-94802
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/>	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>	<b>ENGINEERING SIGNOFF (if required)</b>
INSPECTED BY: <u>AK</u>	SIGNED OFF BY: _____
DATE: <u>18/10/03</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



CERTIFICAT D'ANALYSE

DART AEROSPACE LTD  
1270, ABERDEEN STREET  
HAWKESBURY, ONTARIO  
K6A 1K7

25 sept. 2018

MST05000

728 Pounds

Plate 1/2 4140/42 Prehard

34.06250 x 143.56250

ASTM A-829

DFARS Compliant

Country of Origin: SLOVENIA

Lot: 509805b

PM Heat 96017

BHN: 299

C: 0.4030

Mn: 0.7520

P: 0.0090

S: 0.0010

Si: 0.2330

Cr: 0.9300

Mo: 0.1700

Cu: 0.1940

V: 0.0360

Ni: 0.1400

ITEM 5: 1 X .500" X 144R/L"

COMMANDE: 138058

REF: ~~138058~~ 41051

Métaux Solutions inc. certifie que les analyses sur ce document sont exactes et que le matériel rencontre les spécifications énumérées.

*M. Paquette*  
Préparé par

PURCHASE MATERIAL : AISI #140 4142 STEEL SHEET OR PLATE  
MINIMUM ROCKWELL C = 28 Rc  
MAXIMUM ROCKWELL C = 32 Rc

SPECIFICATION: ASTM A829, AMS 6395

PART NUMBER: MT-4140-S-(T, TTT) x (W, WWW)  
WHERE "T, TTT" = THICKNESS IN INCHES  
WHERE "W, WWW" = WIDTH IN INCHES (O

EX. 0.063" THICK SHEET = MT-4140-S-0.063  
EX. 3.5" WIDE BY 0.500" THICK PLATE = MT-4140-S-0.500X3.500

[illegible]

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140-S-0.500x0.500

PO / BATCH NO.: P0040984/S115351

DATE: 18/10/03

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 0.500"

QUANTITY RECEIVED: 12ft

THICKNESS RECEIVED: 0.500"

QUANTITY INSPECTED: 12ft

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	ASTM A-89
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	MT-96017
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/03</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# CERTIFICATE OF TEST CERTIFICAT D'ESSAIS

Page 01 of 03

CUSTOMER ORDER NUMBER  
NUMÉRO DE COMMANDE DU CLIENT

Certification Date  
3-MAY-2018

44673-M  
PART NUMBER/NUMÉRO DE PIÈCE  
506440

Invoice Number  
S706659

SOLD TO: METAUX SOLUTIONS INC. SHIP TO: METAUX SOLUTIONS (RIVE-SUD)  
VENDU À: 2625 BOUL JACQUES CARTIER EST EXPÉDIÉ À: 2625 BOUL JACQUES CARTIER EST  
LONGUEUIL QC J4N 1L7 LONGUEUIL QC J4N 1

Description: 4140/4142 HR HT BAR STRESS FREE 269/321 BHN  
3 RD X 20' R/L  
HEAT: 52041117 ITEM: 506440 Line Total: 1109.166 LB

## Specifications:

ASTM A193 GR B7 10  
AISI 4140/42  
ASTM A255 10  
ASTM E114 10  
ASTM A370 14  
ASTM E45 13

ASTM A434 GR (BC) 06  
ASTM A388 11  
ASTM A304 11  
ASTM E381 01  
ASTM E10  
ASTM A751 CHEM 11

ASME SA193 GR B7 00  
ASTMA29 12  
ASTM A322 07  
EN 10204 TYPE 3.1 04  
ASTM E112 12  
CAT 1E0038

## CHEMICAL ANALYSIS

C	MN	SI	P	S	CR	NI	MO
0.41	0.93	0.27	0.011	0.019	0.93	0.10	0.192
AL	CU	SN	V	B	H		
0.028	0.20	0.013	0.003	0.0003	0.0003		

RCPT: R433525

COUNTRY OF ORIGIN : MEXICO

## MECHANICAL PROPERTIES

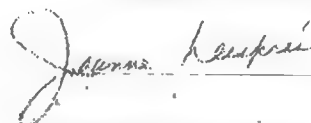
DESCRIPTION	YLD STR KSI	ULT TEN KSI	%ELONG IN 02 IN	%RED IN AREA	HARDNESS BHN
	110.0	133.0	17.9	55.4	309

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. /Les informations ci-haut-mentionnées sont transcrites du certificat d'essais du manufacturier après vérification de l'état complet des spécifications inscrites sur le certificat. We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes. /Les informations fausses, fictives ou frauduleuses en rapport avec le résultat des essais sont punissables en vertu des lois fédérales.

Material did not come in contact with mercury while in our possession. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

JOANNE DESPRES



MANAGER QUALITY ASSURANCE  
GÉRANT DE L'ASSURANCE QUALITÉ

# CERTIFICATE OF TEST CERTIFICAT D'ESSAIS

Page 02 of 03

CUSTOMER ORDER NUMBER  
NUMÉRO DE COMMANDE DU CLIENT

Certification Date  
3-MAY-2018

44673-M  
PART NUMBER/NUMÉRO DE PIÈCE

Invoice Number  
S706659

506440

<b>SOLD TO:</b>	METAUX SOLUTIONS INC.	<b>SHIP TO:</b>	METAUX SOLUTIONS (RIVE-SUD)
<b>VENDU À:</b>	2625 BOUL JACQUES CARTIER EST LONGUEUIL QC J4N 1L7	<b>EXPÉDIÉ À:</b>	2625 BOUL JACQUES CARTIER EST LONGUEUIL QC J4N 1

Description: 4140/4142 HR HT BAR STRESS FREE 269/321 BHN  
3 RD X 20' R/L  
HEAT: 52041117  
END-QUENCH HARDENABILITY (JOMINY - RC)  
ITEM: 506440  
Line Total: 1109.166 LB

1	2	3	4	5	6	8	10	12	14	16	20	24	28	32
57	57	57	57	57	57	57	54	51	50	48	47	44	42	40

IDEAL DIAMETER : 5.6 IN GRAIN SIZE : 6 - 8

CLEANLINESS

	A		B		C		D	
	THIN MAX	THICK MAX	THIN MAX	THICK MAX	THIN MAX	THICK MAX	THIN MAX	THICK MAX
e45	2.0	0.0	1.0	0.0	0.5	0.0	1.0	0.0

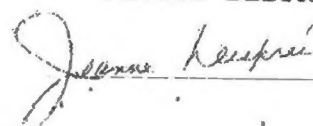
VACUUM DEGASSED MATERIAL IS FREE FROM MERCURY CONTAMINATION  
NO WELD REPAIR PERFORMED ON MATERIAL  
ULTRASONIC: YES  
THERMAL TREATMENT: OK  
AUSTENITIZED AT 1607 DEG F BY: 110 MIN  
QUENCHED IN: WATER SPRAY AT 75 DEG F  
TEMPERED AT 1173 DEG F BY 117 MIN.  
COOLED IN AIR AT TEMPERATURE ROOM  
STRESS FREE  
DECARB: OK  
MACRO: OK  
MICRO1: OK

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. Les informations ci-haut-mentionnées sont transcrites du certificat d'essais du manufacturier après vérification de l'état complet des spécifications inscrites sur le certificat. We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description. Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

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Material did not come in contact with mercury while in our possession. Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

JOANNE DESPRES



MANAGER QUALITY ASSURANCE  
GÉRANT DE L'ASSURANCE QUALITÉ

# CERTIFICATE OF TEST CERTIFICAT D'ESSAIS

Page 03 of 03

CUSTOMER ORDER NUMBER  
NUMÉRO DE COMMANDE DU CLIENT

Certification Date  
3-MAY-2018

44673-M  
PART NUMBER/NUMÉRO DE PIÈCE  
506440

Invoice Number  
S706659

SOLD TO: METAUX SOLUTIONS INC.  
VENDU À:

SHIP TO:  
EXPÉDIÉ À:

2625 BOUL JACQUES CARTIER EST  
LONGUEUIL QC J4N 1L7

METAUX SOLUTIONS (RIVE-SUD)

2625 BOUL JACQUES CARTIER EST  
LONGUEUIL QC J4N 1

Description: 4140/4142 HR HT BAR STRESS FREE 269/321 BHN  
3 RD X 20' R/L

HEAT: 52041117

ITEM: 506440

Line Total: 1109.166 LB

## COMMENTS

red. ratio 5.61

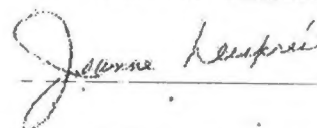
free from radioactive contamination

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JOANNE DESPRES



MANAGER QUALITY ASSURANCE  
GÉRANT DE L'ASSURANCE QUALITÉ

**DART**

DESIGN #	DRAWN BY #	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. M4140H-R	REV. A SHEET 1 OF 1
DATE 05.02.21		TITLE 4140 ROUND BAR	SCALE 1:1
A	05.02.21	NEW ISSUE	

PURCHASE MATERIAL: AISI 4140H ROUND BAR

PER AISI 4140 OR ASTM A304-02 / A-434-BC /

-A193-03- GRADE-B7 / -A29-03 / -A322-91 OR

UNS # - G41400

MINIMUM ULTIMATE TENSILE STRENGTH = 100 ksi

MINIMUM YIELD TENSILE STRENGTH = 66 ksi

PART NUMBER: M4140H-R | D.DDD | WHERE D.DDD = DIAMETER IN INCHES  
DIA

EG. 7/8" ROUND BAR = M4140H-R0.875

RELEASED  
05.03.25 #

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## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4140H-R3.000  
 DATE: 18/10/03

PO / BATCH NO.: PO 040984/S115494

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 6ft  
 QUANTITY INSPECTED: 6ft  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 3.000"  
 THICKNESS RECEIVED: 3.000"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	N	
CORROSION	Y	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	N	ASTM A434
CORRECT THICKNESS	<input checked="" type="checkbox"/>	N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	N	UT: S2041117
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUOMETER READING	HRC	HRB	DUR A	DUR D	WEBSTER

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/03</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in